

11/16/00

JC891 U.S. PTO

Please type a plus sign (+) inside this box → ☐PTO/SB/05 (4/98)
Approved for use through 09/30/2000 OMB 0651-0032
Patent and Trademark Office, U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number**UTILITY
PATENT APPLICATION
TRANSMITTAL**

(Only for new nonprovisional applications under 37 C.F.R. § 1.53(b))

Attorney Docket No. 500.37136CX1

First Inventor or Application Identifier Yutaka NAGAI et al

Title See 1 in Addendum

Express Mail Label No.

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

1. ☒ * Fee Transmittal Form (e.g., PTO/SB/17)
(Submit an original and a duplicate for fee processing)
2. ☒ Specification [Total Pages 23]
(preferred arrangement set forth below)
- Descriptive title of the Invention
 - Cross References to Related Applications
 - Statement Regarding Fed sponsored R & D
 - Reference to Microfiche Appendix
 - Background of the Invention
 - Brief Summary of the Invention
 - Brief Description of the Drawings (if filed)
 - Detailed Description
 - Claim(s)
 - Abstract of the Disclosure

3. ☒ Drawing(s) (35 U.S.C. 113) [Total Sheets 4]

4. Oath or Declaration [Total Pages 2]

- a. ☐ Newly executed (original or copy)
- b. ☒ Copy from a prior application (37 C.F.R. § 1.63(d))
(for continuation/divisional with Box 16 completed)
- i. ☐ **DELETION OF INVENTOR(S)**
Signed statement attached deleting
inventor(s) named in the prior application,
see 37 C.F.R. §§ 1.63(d)(2) and 1.33(b).

* NOTE FOR ITEMS 1 & 13 IN ORDER TO BE ENTITLED TO PAY SMALL ENTITY
FEES, A SMALL ENTITY STATEMENT IS REQUIRED (37 C.F.R. § 1.27), EXCEPT
IF ONE FILED IN A PRIOR APPLICATION IS RELIED UPON (37 C.F.R. § 1.28).

ADDRESS TO: Assistant Commissioner for Patents
Box Patent Application
Washington, DC 20231

5. ☐ Microfiche Computer Program (Appendix)
6. ☐ Nucleotide and/or Amino Acid Sequence Submission
(if applicable, all necessary)
- a. ☐ Computer Readable Copy
 - b. ☐ Paper Copy (identical to computer copy)
 - c. ☐ Statement verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

7. ☐ Assignment Papers (cover sheet & document(s))
8. ☐ 37 C.F.R. § 373(b) Statement ☐ Power of
(when there is an assignee) ☐ Attorney
9. ☐ English Translation Document (if applicable)
10. ☒ Information Disclosure ☐ Copies of IDS
Statement (IDS)/PTO-1449 ☐ Citations
11. ☐ Preliminary Amendment
12. ☒ Return Receipt Postcard (MPEP 503)
(Should be specifically itemized)
13. ☐ * Small Entity ☐ Statement filed in prior application
Statement(s) ☐ Status still proper and desired
(PTO/SB/09-12)
14. ☐ Certified Copy of Priority Document(s)
(if foreign priority is claimed)
15. ☐ Other.

16. If a CONTINUING APPLICATION, check appropriate box, and supply the requisite information below and in a preliminary amendment

☒ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No. 09/290,251

Prior application information: Examiner N. Rosen Group / Art Unit. 2764

For CONTINUATION or DIVISIONAL APPS only: The entire disclosure of the prior application, from which an oath or declaration is supplied under Box 4b, is considered a part of the disclosure of the accompanying continuation or divisional application and is hereby incorporated by reference. The incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.

17. CORRESPONDENCE ADDRESS☒ Customer Number or Bar Code Label

020457

or ☐ Correspondence address below

(Insert Customer No. or Attach bar code label here)

Name

Address

City

State

Zip Code

Country

Telephone

Fax

Name (Print/Type)

Melvin Kraus

Registration No. (Attorney/Agent)

22,466

Signature

Melvin Kraus

Date

Nov. 16, 2000

Burden Hour Statement This form is estimated to take 0.2 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Box Patent Application, Washington, DC 20231

—

- [illegible]

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number

Approved for use through 09/30/2000 OMB 0651-0032
Patent and Trademark Office U.S. DEPARTMENT OF COMMERCE

PTO/SB/17 (12/99)

JC869 U.S. PTO
09/712970



<h1 style="text-align: center;">FEE TRANSMITTAL</h1> <h2 style="text-align: center;">for FY 2000</h2> <p style="text-align: center;"><i>Patent fees are subject to annual revision</i></p> <p style="text-align: center;"><i>Small Entity payments <u>must</u> be supported by a small entity statement, otherwise large entity fees must be paid See Forms PTO/SB/09-12</i></p> <p style="text-align: center;"><i>See 37 CFR §§ 1.27 and 1.28</i></p>		Complete if Known		
		Application Number		
		Filing Date	November 16, 2000	
		First Named Inventor	Yutaka NAGAI et al	
		Examiner Name		
TOTAL AMOUNT OF PAYMENT (\$)		950.00	Group / Art Unit	
		Attorney Docket No.	500.37136CX1	

METHOD OF PAYMENT (check one)		FEE CALCULATION (continued)																																																																																																																													
<p>1. <input type="checkbox"/> The Commissioner is hereby authorized to charge indicated fees and credit any overpayments to</p> <p>Deposit Account Number <u>01-2135</u></p> <p>Deposit Account Name <u></u></p> <p><input type="checkbox"/> Charge Any Additional Fee Required Under 37 CFR §§ 1.16 and 1.17</p>		<p>3. ADDITIONAL FEES</p> <table border="1"> <thead> <tr> <th>Large Entity Fee Code (\$)</th> <th>Small Entity Fee Code (\$)</th> <th>Fee Description</th> <th>Fee Paid</th> </tr> </thead> <tbody> <tr><td>105 130</td><td>205 65</td><td>Surcharge - late filing fee or oath</td><td>0.00</td></tr> <tr><td>127 50</td><td>227 25</td><td>Surcharge - late provisional filing fee or cover sheet</td><td>0.00</td></tr> <tr><td>139 130</td><td>139 130</td><td>Non-English specification</td><td>0.00</td></tr> <tr><td>147 2,520</td><td>147 2,520</td><td>For filing a request for reexamination</td><td>0.00</td></tr> <tr><td>112 920*</td><td>112 920*</td><td>Requesting publication of SIR prior to Examiner action</td><td>0.00</td></tr> <tr><td>113 1,840*</td><td>113 1,840*</td><td>Requesting publication of SIR after Examiner action</td><td>0.00</td></tr> <tr><td>115 110</td><td>215 55</td><td>Extension for reply within first month</td><td>0.00</td></tr> <tr><td>116 380</td><td>216 190</td><td>Extension for reply within second month</td><td>0.00</td></tr> <tr><td>117 870</td><td>217 435</td><td>Extension for reply within third month</td><td>0.00</td></tr> <tr><td>118 1,360</td><td>218 680</td><td>Extension for reply within fourth month</td><td>0.00</td></tr> <tr><td>128 1,850</td><td>228 925</td><td>Extension for reply within fifth month</td><td>0.00</td></tr> <tr><td>119 300</td><td>219 150</td><td>Notice of Appeal</td><td>0.00</td></tr> <tr><td>120 300</td><td>220 150</td><td>Filing a brief in support of an appeal</td><td>0.00</td></tr> <tr><td>121 260</td><td>221 130</td><td>Request for oral hearing</td><td>0.00</td></tr> <tr><td>138 1,510</td><td>138 1,510</td><td>Petition to institute a public use proceeding</td><td>0.00</td></tr> <tr><td>140 110</td><td>240 55</td><td>Petition to revive - unavoidable</td><td>0.00</td></tr> <tr><td>141 1,210</td><td>241 605</td><td>Petition to revive - unintentional</td><td>0.00</td></tr> <tr><td>142 1,210</td><td>242 605</td><td>Utility issue fee (or reissue)</td><td>0.00</td></tr> <tr><td>143 430</td><td>243 215</td><td>Design issue fee</td><td>0.00</td></tr> <tr><td>144 580</td><td>244 290</td><td>Plant issue fee</td><td>0.00</td></tr> <tr><td>122 130</td><td>122 130</td><td>Petitions to the Commissioner</td><td>0.00</td></tr> <tr><td>123 50</td><td>123 50</td><td>Petitions related to provisional applications</td><td>0.00</td></tr> <tr><td>126 240</td><td>126 240</td><td>Submission of Information Disclosure Stmt</td><td>0.00</td></tr> <tr><td>581 40</td><td>581 40</td><td>Recording each patent assignment per property (times number of properties)</td><td>0.00</td></tr> <tr><td>146 690</td><td>246 345</td><td>Filing a submission after final rejection (37 CFR § 1.129(a))</td><td>0.00</td></tr> <tr><td>149 690</td><td>249 345</td><td>For each additional invention to be examined (37 CFR § 1.129(b))</td><td>0.00</td></tr> <tr><td colspan="3">Other fee (specify) _____</td><td>0.00</td></tr> <tr><td colspan="3">Other fee (specify) _____</td><td>0.00</td></tr> <tr> <td colspan="2">SUBTOTAL (1) (\$)</td> <td colspan="2">SUBTOTAL (3) (\$)</td> </tr> <tr> <td colspan="2">710.00</td> <td colspan="2">0.00</td> </tr> </tbody> </table>		Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid	105 130	205 65	Surcharge - late filing fee or oath	0.00	127 50	227 25	Surcharge - late provisional filing fee or cover sheet	0.00	139 130	139 130	Non-English specification	0.00	147 2,520	147 2,520	For filing a request for reexamination	0.00	112 920*	112 920*	Requesting publication of SIR prior to Examiner action	0.00	113 1,840*	113 1,840*	Requesting publication of SIR after Examiner action	0.00	115 110	215 55	Extension for reply within first month	0.00	116 380	216 190	Extension for reply within second month	0.00	117 870	217 435	Extension for reply within third month	0.00	118 1,360	218 680	Extension for reply within fourth month	0.00	128 1,850	228 925	Extension for reply within fifth month	0.00	119 300	219 150	Notice of Appeal	0.00	120 300	220 150	Filing a brief in support of an appeal	0.00	121 260	221 130	Request for oral hearing	0.00	138 1,510	138 1,510	Petition to institute a public use proceeding	0.00	140 110	240 55	Petition to revive - unavoidable	0.00	141 1,210	241 605	Petition to revive - unintentional	0.00	142 1,210	242 605	Utility issue fee (or reissue)	0.00	143 430	243 215	Design issue fee	0.00	144 580	244 290	Plant issue fee	0.00	122 130	122 130	Petitions to the Commissioner	0.00	123 50	123 50	Petitions related to provisional applications	0.00	126 240	126 240	Submission of Information Disclosure Stmt	0.00	581 40	581 40	Recording each patent assignment per property (times number of properties)	0.00	146 690	246 345	Filing a submission after final rejection (37 CFR § 1.129(a))	0.00	149 690	249 345	For each additional invention to be examined (37 CFR § 1.129(b))	0.00	Other fee (specify) _____			0.00	Other fee (specify) _____			0.00	SUBTOTAL (1) (\$)		SUBTOTAL (3) (\$)		710.00		0.00	
Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid																																																																																																																												
105 130	205 65	Surcharge - late filing fee or oath	0.00																																																																																																																												
127 50	227 25	Surcharge - late provisional filing fee or cover sheet	0.00																																																																																																																												
139 130	139 130	Non-English specification	0.00																																																																																																																												
147 2,520	147 2,520	For filing a request for reexamination	0.00																																																																																																																												
112 920*	112 920*	Requesting publication of SIR prior to Examiner action	0.00																																																																																																																												
113 1,840*	113 1,840*	Requesting publication of SIR after Examiner action	0.00																																																																																																																												
115 110	215 55	Extension for reply within first month	0.00																																																																																																																												
116 380	216 190	Extension for reply within second month	0.00																																																																																																																												
117 870	217 435	Extension for reply within third month	0.00																																																																																																																												
118 1,360	218 680	Extension for reply within fourth month	0.00																																																																																																																												
128 1,850	228 925	Extension for reply within fifth month	0.00																																																																																																																												
119 300	219 150	Notice of Appeal	0.00																																																																																																																												
120 300	220 150	Filing a brief in support of an appeal	0.00																																																																																																																												
121 260	221 130	Request for oral hearing	0.00																																																																																																																												
138 1,510	138 1,510	Petition to institute a public use proceeding	0.00																																																																																																																												
140 110	240 55	Petition to revive - unavoidable	0.00																																																																																																																												
141 1,210	241 605	Petition to revive - unintentional	0.00																																																																																																																												
142 1,210	242 605	Utility issue fee (or reissue)	0.00																																																																																																																												
143 430	243 215	Design issue fee	0.00																																																																																																																												
144 580	244 290	Plant issue fee	0.00																																																																																																																												
122 130	122 130	Petitions to the Commissioner	0.00																																																																																																																												
123 50	123 50	Petitions related to provisional applications	0.00																																																																																																																												
126 240	126 240	Submission of Information Disclosure Stmt	0.00																																																																																																																												
581 40	581 40	Recording each patent assignment per property (times number of properties)	0.00																																																																																																																												
146 690	246 345	Filing a submission after final rejection (37 CFR § 1.129(a))	0.00																																																																																																																												
149 690	249 345	For each additional invention to be examined (37 CFR § 1.129(b))	0.00																																																																																																																												
Other fee (specify) _____			0.00																																																																																																																												
Other fee (specify) _____			0.00																																																																																																																												
SUBTOTAL (1) (\$)		SUBTOTAL (3) (\$)																																																																																																																													
710.00		0.00																																																																																																																													
<p>2. <input checked="" type="checkbox"/> Payment Enclosed:</p> <p><input type="checkbox"/> Check <input type="checkbox"/> Money Order <input checked="" type="checkbox"/> Other</p>																																																																																																																															
FEE CALCULATION																																																																																																																															
<p>1. BASIC FILING FEE</p> <table border="1"> <thead> <tr> <th>Large Entity Fee Code (\$)</th> <th>Small Entity Fee Code (\$)</th> <th>Fee Description</th> <th>Fee Paid</th> </tr> </thead> <tbody> <tr><td>101 690</td><td>201 345</td><td>Utility filing fee</td><td>710.00</td></tr> <tr><td>106 310</td><td>206 155</td><td>Design filing fee</td><td></td></tr> <tr><td>107 480</td><td>207 240</td><td>Plant filing fee</td><td></td></tr> <tr><td>108 690</td><td>208 345</td><td>Reissue filing fee</td><td></td></tr> <tr><td>114 150</td><td>214 75</td><td>Provisional filing fee</td><td></td></tr> <tr> <td colspan="3">SUBTOTAL (1) (\$)</td> <td>710.00</td> </tr> </tbody> </table>		Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid	101 690	201 345	Utility filing fee	710.00	106 310	206 155	Design filing fee		107 480	207 240	Plant filing fee		108 690	208 345	Reissue filing fee		114 150	214 75	Provisional filing fee		SUBTOTAL (1) (\$)			710.00																																																																																																		
Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid																																																																																																																												
101 690	201 345	Utility filing fee	710.00																																																																																																																												
106 310	206 155	Design filing fee																																																																																																																													
107 480	207 240	Plant filing fee																																																																																																																													
108 690	208 345	Reissue filing fee																																																																																																																													
114 150	214 75	Provisional filing fee																																																																																																																													
SUBTOTAL (1) (\$)			710.00																																																																																																																												
<p>2. EXTRA CLAIM FEES</p> <table border="1"> <thead> <tr> <th>Large Entity Fee Code (\$)</th> <th>Small Entity Fee Code (\$)</th> <th>Fee Description</th> <th>Fee Paid</th> </tr> </thead> <tbody> <tr><td>103 18</td><td>203 9</td><td>Claims in excess of 20</td><td></td></tr> <tr><td>102 78</td><td>202 39</td><td>Independent claims in excess of 3</td><td></td></tr> <tr><td>104 260</td><td>204 130</td><td>Multiple dependent claim, if not paid</td><td></td></tr> <tr><td>109 78</td><td>209 39</td><td>** Reissue independent claims over original patent</td><td></td></tr> <tr><td>110 18</td><td>210 9</td><td>** Reissue claims in excess of 20 and over original patent</td><td></td></tr> <tr> <td colspan="3">SUBTOTAL (2) (\$)</td> <td>240.00</td> </tr> </tbody> </table>		Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid	103 18	203 9	Claims in excess of 20		102 78	202 39	Independent claims in excess of 3		104 260	204 130	Multiple dependent claim, if not paid		109 78	209 39	** Reissue independent claims over original patent		110 18	210 9	** Reissue claims in excess of 20 and over original patent		SUBTOTAL (2) (\$)			240.00																																																																																																		
Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid																																																																																																																												
103 18	203 9	Claims in excess of 20																																																																																																																													
102 78	202 39	Independent claims in excess of 3																																																																																																																													
104 260	204 130	Multiple dependent claim, if not paid																																																																																																																													
109 78	209 39	** Reissue independent claims over original patent																																																																																																																													
110 18	210 9	** Reissue claims in excess of 20 and over original patent																																																																																																																													
SUBTOTAL (2) (\$)			240.00																																																																																																																												

SUBMITTED BY		Complete (if applicable)	
Name (Print/Type)	Merwin K. Kaus	Registration No (Attorney/Agent)	22,466
Signature	<i>Merwin K. Kaus</i>	Telephone	703-312-6600
		Date	Nov. 16, 2000

WARNING:

Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

Burden Hour Statement This form is estimated to take 0.2 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO Assistant Commissioner for Patents, Washington, DC 20231.

REPRODUCTION APPARATUS AND REPRODUCTION METHOD
OF DIGITAL VIDEO SIGNAL OR AUDIO SIGNAL

CROSS REFERENCE TO RELATED APPLICATION

This is a continuation of U.S. application Serial No.
5 09/290,251, filed April 13, 1999, the subject matter of which
is incorporated by reference herein.

BACKGROUND OF THE INVENTION

The present invention relates to a reproduction apparatus
for a signal recorded on a medium such as an optical storage
10 medium, and in particular to a technique making it possible to
protect a copyright of the signal recorded on the medium.

A digital video disk (DVD) for recording an audio/video
(AV) signal compressed by using MPEG2 has a problem that the
AV signal could be copied without quality degradation because
15 the AV signal is handled as digital data.

In opposition to this, there has been introduced a
technique of an electronic watermark for superimposing
information such as permission, inhibition, or permission of
only one generation as to copying so that the user may not
20 sense it as described in Nikkei Electronics, February 24,
1997, pp. 99 - 123. In the above described technique, there
is described, for example, a method for conducting copying
prevention processing on analog output in accordance with a
detected signal.

25 In the case of a medium such as a broadcasting which
permits copying only once, however, it is not considered to
protect a copyright by restricting reproduction, using a

player of each user, of a pirated edition disk which is produced by copying a signal onto a DVD-R disk (capable of recording the signal once) or the like and thereafter further copying the signal from the DVD-R disk to a DVD-ROM.

5 SUMMARY OF THE INVENTION

Assuming that copying is permitted only once in broadcasting or the like, an object of the present invention is to provide a technique for preventing a pirated edition disk which is produced by recording a signal onto a DVD-R disk (capable of recording the signal once), a DVD-RAM disk (rewritable), or the like and thereafter illegally copying the recorded signal to a DVD-ROM, from being reproduced by an ordinary user's player capable of reproducing DVD-ROM, DVD-R and DVD-RAM disks.

Another object of the present invention is to report the cause of the reproduction stoppage to the user correctly in the case where reproduction is inhibited.

Originally, a medium allowing copying only once does not exist in DVD-ROM disks. In other words, it is impossible in DVD-ROMs to detect information which has permitted copying of only one generation, from video data. In the case where a signal from a medium permitting copying only once, such as broadcasting, is recorded on a recordable medium such as DVD-R/RAM and the recorded signal is copied onto a DVD-ROM to produce a pirated edition, information which has permitted copying of only one generation is detected from the video data. Therefore, in accordance with an aspect of the present invention, a means for identifying whether a disk is a DVD-R,

a DVD-RAM, or a DVD-ROM, and a means for detecting
superimposed or embedded information concerning permission of
copying from video data are provided. If the disk is a
DVD-ROM and information identifying that copying of one
5 generation has been permitted, such as an electronic watermark
and copying protect cryptographic information is detected,
then reproduction from the disk is inhibited, the reason of
the reproduction stoppage is provided. So, the fact that the
reproduction has been stopped due to a copyright problem is
10 reported to the user. As a result, the above described
objects are achieved.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a block circuit diagram of a DVD reproduction
apparatus showing a first embodiment of the present invention;

15 FIG. 2 is a block circuit diagram of a DVD reproduction
apparatus showing a second embodiment of the present
invention;

FIG. 3 is a block circuit diagram of a DVD reproduction
apparatus showing a third embodiment of the present invention;
20 and

FIG. 4 is a block circuit diagram of a DVD reproduction
apparatus showing a fourth embodiment of the present
invention.

DESCRIPTION OF THE EMBODIMENTS

25 A first embodiment of the present invention will now be
described by referring to the drawing.

FIG. 1 is a block diagram of a DVD reproduction apparatus
showing an embodiment of the present invention. Numeral 101

denotes a DVD-ROM disk, a DVD-R disk, or a DVD-RAM disk having video data or the like recorded thereon. In the present embodiment, video data or audio data having copying permission information superimposed thereon or embedded therein is recorded in each of the above described disks. The superimposed copying permission information cannot be altered without significantly degrading the quality of the original video data or audio data. A disk identification code (a code for identifying whether the disk is a disk dedicated for reproduction) is further added to the video data or audio data. Numeral 102 denotes an optical pickup for detecting a signal from the disk 101. Numeral 103 denotes a preamplifier for conducting amplification, waveform equalization, and the like on a signal detected by the optical pickup. Numeral 104 denotes a demodulation circuit for converting a reproduced signal to binary values and conducting bit synchronization and demodulation. Numeral 105 denotes a RAM for temporarily storing the reproduced data thus demodulated. Numeral 106 denotes an error correction circuit for conducting error correction processing on data demodulated and stored in the RAM 105. Numeral 107 denotes a detection circuit for detecting a disk identification code recorded on the disk together with the video data or the like. Numeral 108 denotes a detection circuit for detecting superimposed copying permission information from the video data. Numeral 109 denotes a circuit for generating a disk reproduction stopping signal 114 from the detected identification code and the copying permission information. If the disk reproduction

7

stopping signal 114 has been generated, then the error
correction circuit 106 destroys data instead of correcting
data, and simultaneously generates a flag 118 indicating that
an error is incorrecable. Numeral 110 denotes a message
5 information generation circuit for generating video data (such
as characters or an illustration) or an audio signal
indicating that the reproduction is impossible. Numeral 111
denotes a selection circuit for selecting either data
subjected to correction processing stored in the RAM 105 or
10 message information supplied from the message information
generation circuit, in accordance with the disk reproduction
stopping signal 114. Numeral 112 denotes an output control
circuit for conducting timing control and the like to output
data from the selection circuit 111. Numeral 113 denotes a
data output terminal. Numeral 115 denotes an interface for a
15 microcomputer. Numeral 121 denotes a microcontroller for
controlling a signal processing device 120 formed of
components 104, 105, 106, 107, 108, 109, 110, 111, 112, 114
and 115. Numeral 122 denotes a data/signal transfer bus among
20 the demodulation circuit 104, the RAM 105, the error
correction circuit 106, the detection circuits 107 and 108,
and the selection circuit 110.

Reproduction from a disk in the present DVD reproduction
apparatus will hereafter be described.

25 A signal recorded on the disk 101 is converted to an
electric signal by the pickup 102. The electric signal is
subjected in the preamplifier 103 to amplification and
waveform equalization. Thereafter, in the demodulation

circuit 104, the reproduced signal is converted to binary values, and subjected to bit synchronization and demodulation. The reproduced data thus demodulated is temporarily stored in the RAM 105. The stored data is subjected to error correction processing in the error correction circuit 106. The reproduced data thus corrected is sent to the copying permission information detection circuit 108. The copying permission information detection circuit 108 detects the superimposed copying permission information from the reproduced data. The copying permission information indicates which of the following types the recorded data is:

1) copying is possible; 2) copying is inhibited; and 3) copying of only one generation was permitted.

This detected information is sent to the disk reproduction stopping signal generation circuit 109. The disk identification code detection circuit detects the disk identification code added to the video data or audio data, and sends a result to the disk reproduction stopping signal generation circuit 109. The disk identification code identifies 1) a disk dedicated to reproduction, or 2) a recordable disk. If the copying permission information represents "copying of only one generation was permitted" and the disk identification code is judged to be a disk dedicated to reproduction, then the disk reproduction stopping signal generation circuit 109 makes the disk reproduction stopping signal 114 active. Upon the disk reproduction stopping signal 114 becoming active, the error correction circuit 106 destroys the reproduced data stored in the RAM and sends a flag

indicating that error is incorrecable to the microcontroller 115. Upon the disk reproduction stopping signal 114 becoming active, the message information generation circuit 110 generates video or audio message data indicating that the reproduction has been stopped due to violation of copying consent. The above described message information may include where to make contact with a copyright managing organization (such as its telephone number, address, and the like).

The message information generation circuit 110 may be a ROM or the like storing generated data. Normally, the selection circuit 111 selects reproduced data read out from the RAM. When the disk reproduction stopping signal 114 is active, the selection circuit 111 selects the message information supplied from the message information generation circuit 110.

As heretofore described, in the present embodiment, it is possible to inhibit reproduction of a pirated edition disk which is produced by temporarily recording a video signal or an audio signal from broadcasting which may be permitted to be copied by only one generation onto a DVD-R or DVD-RAM, and then copying the video signal or the audio signal onto a DVD-ROM on the basis of the DVD-R or DVD-RAM.

Furthermore, by outputting the message signal, users can recognize that the reproduction inhibition is not caused by a failure of the reproduction apparatus or a damage of the disk, but caused by a problem of the copyright. In addition, by displaying where to make contact with the copyright managing organization, it is possible to collect information for

identifying a person who produced the pirated edition from
users. Furthermore, in the case of a violation of a
copyright, destruction of data is also conducted. In the case
where the signal processing device 120 is formed as a single
semiconductor chip, therefore, data is destroyed and cannot be
read out, even if software of the micro-controller is
falsified and correction impossibility flag is disregarded.
If the disk reproduction stopping signal 114 in the disk
reproduction stopping signal generation circuit 109 is made
active, provided that the copying permission information
indicates "copying of only one generation was permitted" and
the disk identification code is judged to be a disk dedicated
to reproduction or provided that the copying permission
information is "copying is inhibited" and the disk
identification code is judged to a recordable disk, then a
DVD-R/RAM produced by illegally recording contents of a disk
inhibited from being copied can also be prevented from being
reproduced. According to the present embodiment, a
reproduction apparatus capable of sufficiently protecting a
copyright can be provided.

A second embodiment of the present invention will now be
described.

FIG. 2 is a block diagram of a DVD reproduction apparatus
showing the second embodiment.

The disk 101 reproduced in the present embodiment is
intended for a DVD-ROM, a DVD-R, or a DVD-RAM. Among them,
groove-shaped tracks are wobbled in the DVD-RAM/R. Therefore,
a push-pull signal for tracking is modulated by the wobble.

7
This wobble is required to effect tracking at the time of recording, and it does not exist in the disk dedicated to reproduction.

The present embodiment is the same as the first
5 embodiment except the following three points:

1) A wobble detection circuit 116 is provided;

2) A push-pull signal terminal is provided in the preamplifier 103, and it is connected to the wobble detection circuit 116; and

10 3) When the wobble detection circuit 116 has judged that there is no wobbling, or when the disk identification code detection circuit 107 has judged the disk to be a disk dedicated to reproduction and simultaneously therewith the copying permission information detection circuit 108 has
15 judged that copying of only one generation was permitted, the disk reproduction stopping signal generation circuit 109 makes the disk reproduction stopping signal 114 active.

In the present embodiment, at the same time that data is reproduced in the same way as the first embodiment, wobble
20 detection is conducted by the wobble detection circuit 116. When either the wobble detection circuit 116 or the disk identification code detection circuit 107 has judged the disk to be a disk dedicated to reproduction and simultaneously therewith the copying permission information detection circuit
25 108 has judged that copying of only one generation was permitted, the disk reproduction stopping signal generation circuit 109 makes the disk reproduction stopping signal 114 active. Even if the disk identification code is rewritten,

therefore, reproduction is inhibited certainly.

As heretofore described, in the present embodiment, it is possible to inhibit reproduction of a pirated edition disk which is produced by temporarily recording a video signal or an audio signal from broadcasting which may be permitted to be copied by only one generation onto a DVD-R or DVD-RAM, and then copying the video signal or the audio signal onto a DVD-ROM on the basis of the DVD-R or DVD-RAM. In the present embodiment, detection of a pirated edition is conducted certainly by judging the disk to be a disk dedicated to reproduction provided that there is no wobble or provided that the identification code indicates a disk dedicated to reproduction. Even if the condition that the identification code indicates a disk dedicated to reproduction is removed from the decision conditions, however, the same effects as the those of the first embodiment are obtained.

A third embodiment of the present invention will now be described by referring to drawing.

FIG. 3 is a block diagram of a DVD reproduction apparatus showing the third embodiment.

The present embodiment is the same as the first embodiment except the following three points:

- 1) A reflectance identification circuit 117 for processing reflectance information of a disk derived by the preamplifier 103 is provided;

- 2) A terminal for outputting information of the reflectance is provided in the preamplifier 103, and the terminal is connected to the reflectance identification

circuit 117; and

3) When the reflectance identification circuit 117, the wobble detection circuit 116, or the disk identification code detection circuit 107 has judged the disk to be a disk dedicated to reproduction and simultaneously therewith the copying permission information detection circuit 108 has judged that copying of only one generation was permitted, the disk reproduction stopping signal generation circuit 109 makes the disk reproduction stopping signal 114 active.

At the same time that data is reproduced in the same way as the second embodiment, reflectance information is sent from the preamplifier 103 to the reflectance identifying circuit 117 in the present embodiment. The reflectance identifying circuit 117 has a threshold value for the reflectance and identifies a disk yielding a reflectance value which is equal to or larger than the threshold value, as a disk dedicated to reproduction.

When the reflectance identifying circuit 117, the wobble detection circuit 116, or the disk identification code detection circuit 107 has judged the disk to be a disk dedicated to reproduction and simultaneously therewith the copying permission information detection circuit 108 has judged that copying of only one generation was permitted, the disk reproduction stopping signal generation circuit 109 makes the disk reproduction stopping signal 114 active.

Even if the disk identification code is rewritten, reproduction is inhibited certainly. In the present embodiment, detection of a pirated edition is conducted

certainly by judging the disk to be a disk dedicated to reproduction provided that the reflectance is equal to or larger than the threshold value, provided that there is no wobble, or provided that the identification code indicates a disk dedicated to reproduction. Even if the disk is judged to be a disk dedicated to reproduction provided that some combination of the three conditions is satisfied, however, the same effects as the those of the first embodiment are obtained.

A fourth embodiment of the present invention will now be described by referring to drawing.

FIG. 4 is a block diagram of a DVD reproduction apparatus showing the fourth embodiment.

Instead of inputting the output of the message information generation circuit 110 to the selection circuit 111 and inputting the output of the selection circuit 111 to the output control circuit 112, the output of the message information generation circuit 110 is written into the RAM 105 via a RAM write controller 119. Components other than them are common to the third embodiment. In the case where the disk reproduction stopping signal 114 has become active, overwriting is conducted on video data or audio data which should be originally outputted in the present embodiment. As a result, there are obtained the same effects as those of the case where the output of the message information generation circuit 110 is inputted to the selection circuit 111 and the output of the selection circuit 111 is inputted to the output control circuit 112 as in the second embodiment.

Furthermore, in the first to fourth embodiments, the message information for the user is generated in the reproduction apparatus. However, the same effects are also obtained by providing a terminal for outputting the disk reproduction stopping signal 114, sending the disk reproduction stopping signal 114 to a video data display apparatus, an audio output apparatus, a compressed video data or audio data decompression apparatus, or the like, and causing the apparatus receiving the disk reproduction stopping signal 114 to generate the message information.

As heretofore described, reproduction is inhibited according to the present invention in the case where the copying permission information superimposed on the video signal or embedded therein indicates that copying of only one generation was permitted and the disk is judged to be a DVD-ROM. As a result, it is possible to inhibit reproduction from a disk which is produced by temporarily recording video or audio data permitted as to copy of one generation onto a DVD-R/RAM and thereafter illegally copying the recorded data to a DVD-ROM. In addition, in the case where reproduction is inhibited, the cause of the reproduction stoppage can be reported to the user correctly.

Throughout these embodiments, function operation of the circuit for detecting the copying permission information and the disk type, the reproduction stopping signal generation circuit, and the like can be effected by execution of them in a processor in a program form. Therefore, at least a part of the circuit configuration can be implemented in a software

fashion by execution, in the processor, of a program stored in memories.

WHAT IS CLAIMED IS:

1. A reproduction apparatus for reproducing video data and/or audio data from a medium dedicated to reproduction and/or a recordable medium having video data and/or audio data recorded thereon, said video data and/or audio data being generated by superimposing information concerning copying consent on a digitized video signal or audio signal which has undergone addition of an error correction code for error correction and then modulated in accordance with a modulation rule adapted for the recording medium, said reproduction apparatus comprising:

demodulating means for demodulating data modulated in accordance with said modulation rule;

temporal store means for holding the data demodulated by said demodulating means;

error-correcting means for error-correcting the demodulated data stored in said temporal store means based on the error correction code, the error-corrected data being stored in said temporal store means;

reproducing means for reproducing the superimposed information concerning copying consent from the error-corrected demodulated data processed by said error-correcting means and stored in said temporal store means; and

output control means for performing output control of the reproduced data based on said reproduced information concerning copying consent stored in the temporal store means.

2. A reproduction apparatus for reproducing video data and/or audio data according to claim 1, wherein said temporal store means is a RAM.

3. A reproduction apparatus for reproducing video data and/or audio data according to claim 2, wherein said demodulating means, said error-correcting means and said copying consent information reproduction means are connected to said RAM, respectively.

4. A reproduction apparatus for reproducing video data and/or audio data according to claim 3, wherein said RAM is constituted by a single RAM.

5. A reproduction apparatus for reproducing video data and/or audio data according to claim 2, wherein said copying consent information reproducing means, said demodulating means, said error-correcting means and said RAM are integrated in a single semiconductor device.

6. A reproduction apparatus for reproducing video data and/or audio data from a medium dedicated to reproduction and/or a recordable medium having video data and/or audio data recorded thereon, said data and/or audio data being generated by superimposing information concerning copying consent on a digitized video signal or audio signal which has undergone addition of an error correction code for error correction and then modulated in accordance with a modulation rule adapted

for the recording medium, said reproduction apparatus
comprising:

demodulating means for demodulating data modulated in
accordance with said modulation rule;

5 a temporal store means for holding the data demodulated
by said demodulating means;

error-correcting means for error-correcting the
demodulated data stored in said temporal store means based on
an error correction code, the error-corrected data being
10 stored in said temporal store means;

reproducing means for reproducing the superimposed
information concerning copying consent from the error-
corrected video data and/or audio data processed by said
error-correcting means and stored in said temporal store
means; and

means for stopping reproduction of the error-corrected
video data and/or audio data in accordance with the
information concerning copying consent from said copying
consent information reproducing means;

20 wherein said demodulating means, said temporal store
means, said error-correcting means, said copying consent
information reproducing means and said reproduction stopping
means are integrated in a single semiconductor device.

25 7. A reproduction apparatus for reproducing video data
and/or audio data from a medium dedicated to reproduction
and/or a recordable medium having video data and/or audio data
recorded thereon, said video data and/or audio data being

generated by superimposing information concerning copying
consent on a digitized video signal or audio signal which has
undergone addition of an error correction code for error
correction and then modulated in accordance with a modulation
rule adapted for the recording medium, said reproduction
apparatus comprising:

a demodulator which demodulates data modulated in
accordance with said modulation rule;

a temporal store which holds the data demodulated by said
demodulator;

an error-corrector which for error-corrects the
demodulated data stored in said temporal store based on the
error correction code, the error-corrected data being stored
in said temporal store;

a reproducer which for reproduces the superimposed
information concerning copying consent from the error-
corrected demodulated data processed by said error-corrector
and stored in said temporal store; and

an output controller which performs output control of the
reproduced data based on said reproduced information
concerning copying consent stored in the temporal store.

8. A reproduction apparatus for reproducing video data
and/or audio data according to claim 7, wherein said temporal
store is a RAM.

9. A reproduction apparatus for reproducing video data
and/or audio data according to claim 8, wherein said

demodulator, said error-corrector and said copying consent information reproducer are connected to said RAM, respectively.

5 10. A reproduction apparatus for reproducing video data and/or audio data according to claim 9, wherein said RAM is constituted by a single RAM.

10 11. A reproduction apparatus for reproducing video data and/or audio data according to claim 2, wherein said copying consent information reproducer, said demodulator, said error-corrector and said RAM are integrated in a single semiconductor device.

15 12. A reproduction apparatus for reproducing video data and/or audio data from a medium dedicated to reproduction and/or a recordable medium having video data and/or audio data recorded thereon, said data and/or audio data being generated by superimposing information concerning copying consent on a
20 digitized video signal or audio signal which has undergone addition of an error correction code for error correction and then modulated in accordance with a modulation rule adapted for the recording medium, said reproduction apparatus comprising:

25 a demodulator which demodulates data modulated in accordance with said modulation rule;

 a temporal store which holds the data demodulated by said demodulator;

an error-corrector which error-corrects the demodulated data stored in said temporal store based on an error correction code, the error-corrected data being stored in said temporal store;

5 a reproducer which reproduces the superimposed information concerning copying consent from the error-corrected video data and/or audio data processed by said error-corrector and stored in said temporal store; and

10 a reproduction stopper which stops reproduction of the error-corrected video data and/or audio data in accordance with the information concerning copying consent from said copying consent information reproducer;

wherein said demodulator, said temporal store, said error-corrector, said copying consent information reproducer and said reproduction stopper are integrated in a single semiconductor device.

13. A method for reproducing from a medium dedicated to reproduction and/or a recordable medium having video data and/or audio data recorded thereon, said data and/or audio data being generated by superimposing information concerning copying consent on a digitized video signal or audio signal which has being undergone addition of an error correction code for error correction and then modulated in accordance with a modulation rule adapted for the recording medium, in a reproduction apparatus comprising a demodulator which demodulates in accordance with said modulation rule; a temporal store which holds the data demodulated by said

20

25

demodulator; an error-corrector which for error-corrects the demodulated data stored in said temporal store based on the error correction code; a reproducer which for reproduces the superimposed information concerning copying consent from said video data and/or audio data; and an output controller which controls an output of the apparatus, said method comprising the steps:

demodulating modulated data by said demodulator;
temporarily storing the demodulated data in said temporal store;

error-correcting the demodulated data stored in said temporal store means by said error-corrector to provide error-corrected demodulated data;

reproducing the superimposed information concerning copying consent from said error-corrected demodulated data stored in said temporal store by said copying consent information reproducer; and

performing output control of the apparatus by said output controller in accordance with the information concerning copying consent reproduced by said copying consent information reproducer.

14. A method for reproducing from a medium dedicated to reproduction and/or a recordable medium having video data and/or audio data recorded thereon, said data and/or audio data being generated by superimposing information concerning copying consent on a digitized video signal or audio signal which has being undergone addition of an error correction code

for error correction and then modulated in accordance with a modulation rule adapted for the recording medium, in a reproduction apparatus comprising demodulating means for demodulating in accordance with said modulation rule; a
5 temporal store means for holding the data demodulated by said demodulating means; error-correcting means for error-correcting the demodulated data stored in said temporal store means based on the error correction code; reproducing means for reproducing the superimposed information concerning
10 copying consent from said video data and/or audio data; and output control means for controlling an output of the apparatus, said method comprising the steps:

demodulating modulated data by said demodulation means;
temporarily storing the demodulated data in said temporal
15 store mean;

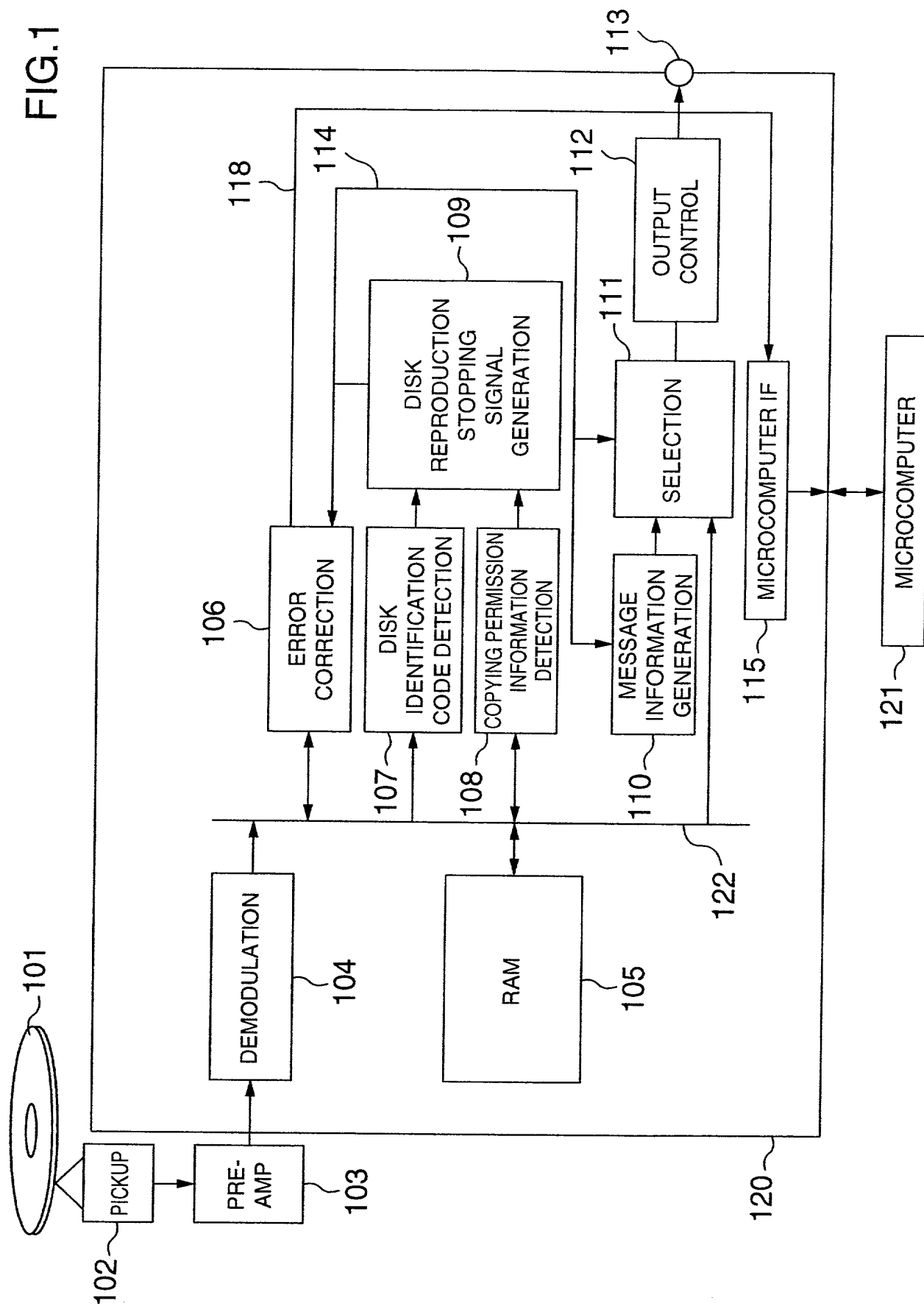
error-correcting the demodulated data stored in said temporal store means by said error-correcting means to provide error-corrected demodulated data;

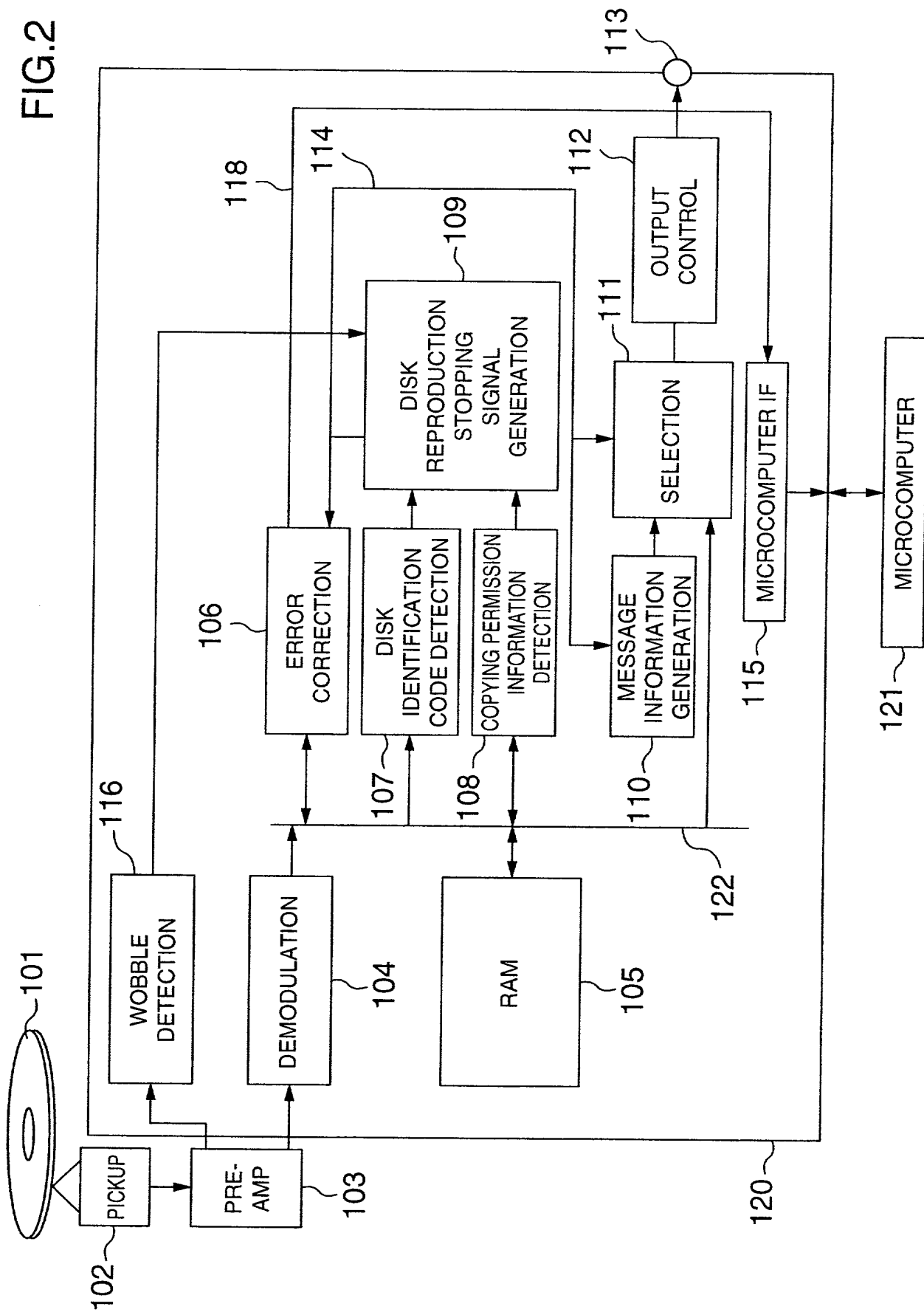
reproducing the superimposed information concerning
20 copying consent from said error-corrected demodulated data stored in said temporal store means by said copying consent information reproducing means; and

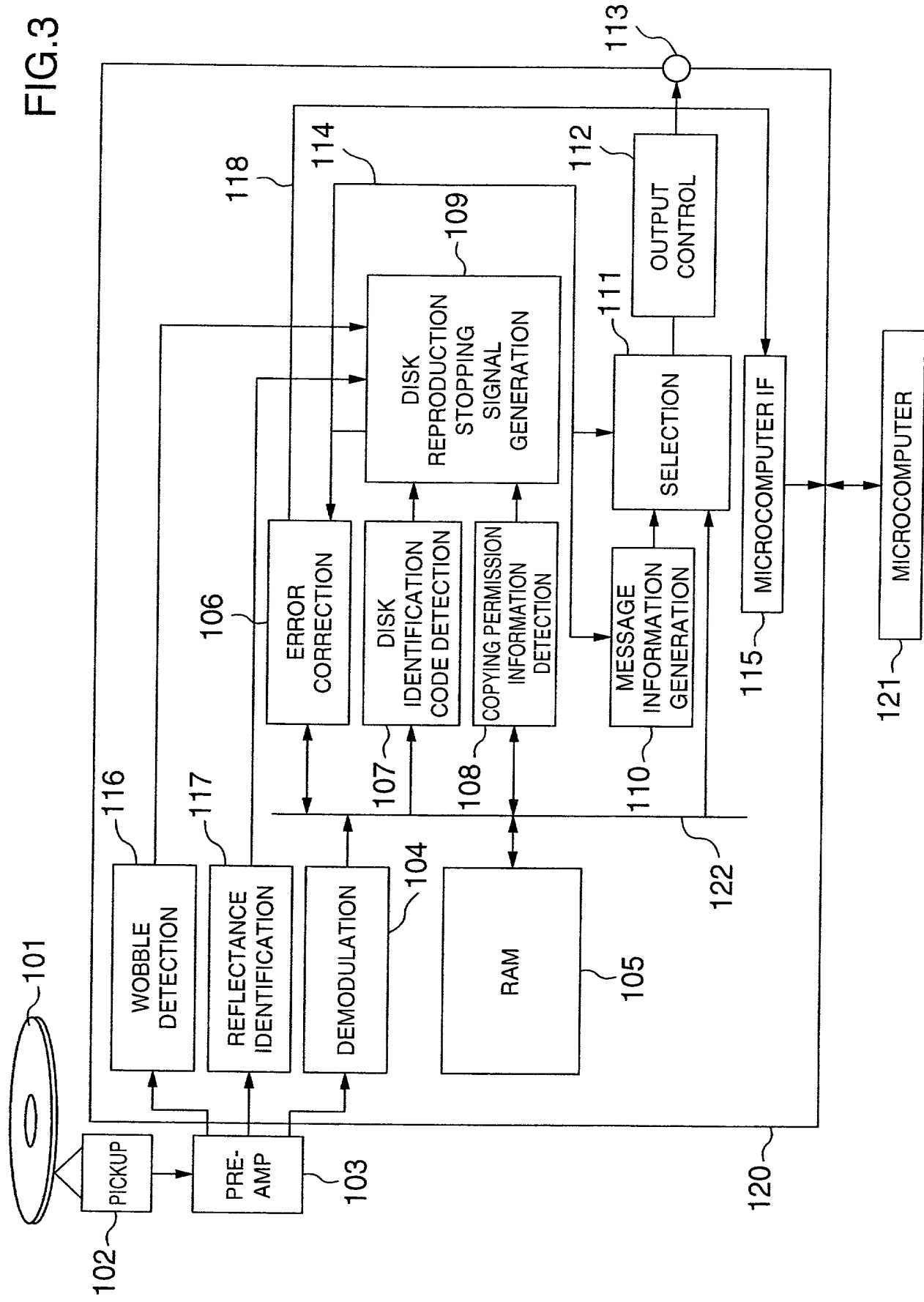
performing output control of the apparatus by said output control means in accordance with the information concerning
25 copying consent reproduced by said copying consent information reproducing means.

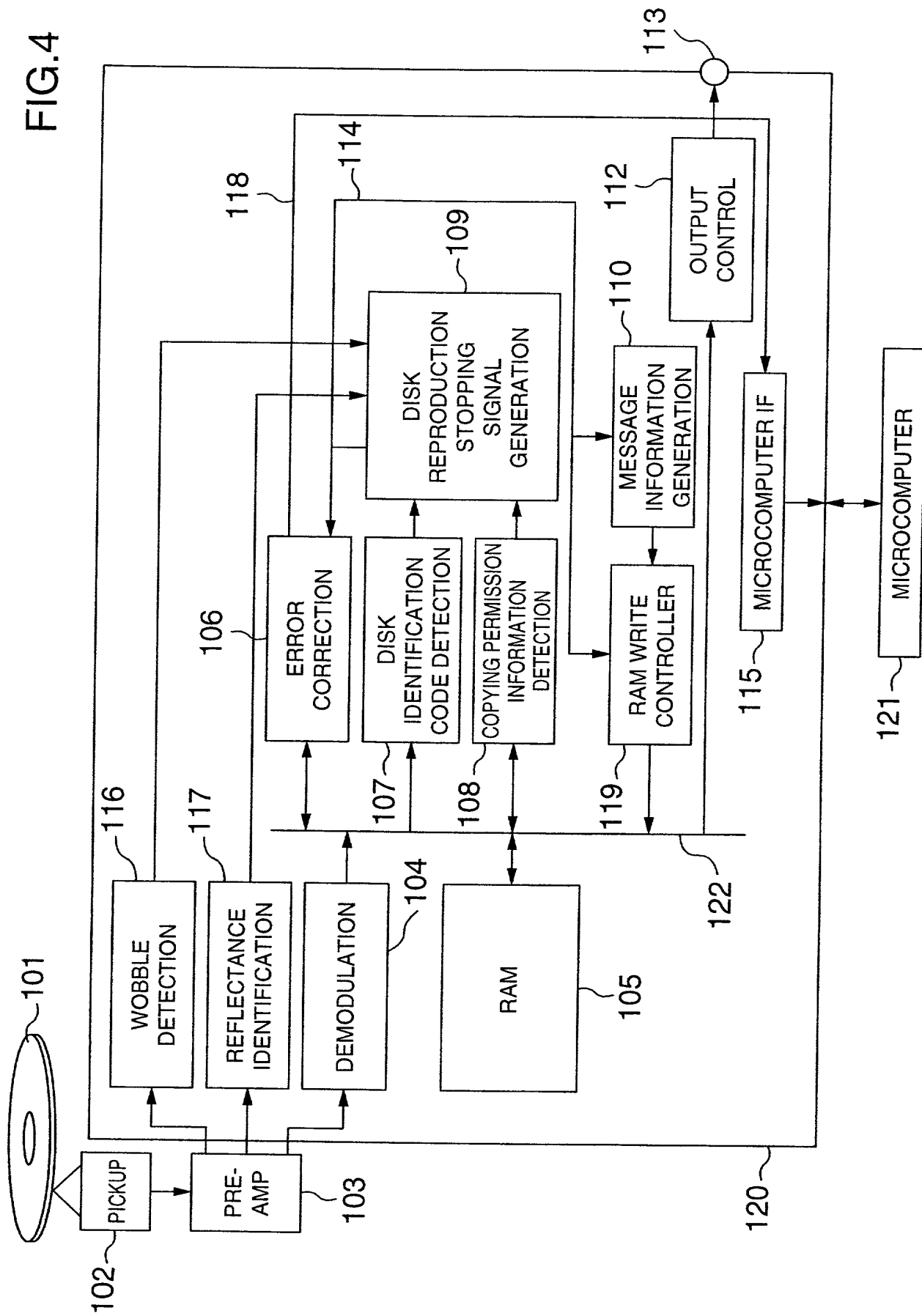
ABSTRACT OF THE DISCLOSURE

A reproduction apparatus and method for reproducing video data and/or audio data from a medium dedicated to reproduction and/or a recordable medium having video data and/or audio data recorded thereon. The video data and/or audio data is generated by superimposing information concerning copying consent on a digitized video signal or audio signal which has undergone addition of an error correction code for error correction and then modulated in accordance with a modulation rule adapted for the recording medium. The reproduction apparatus includes a demodulator for demodulating data modulated in accordance with the modulation rule, a temporal store for holding the data demodulated by the demodulator, an error-corrector for error-correcting the demodulated data stored in the temporal store, based on an error correction code with the error-corrected data being stored in the temporal store. A reproducer reproduces the superimposed information concerning copying consent from the error-corrected demodulated data processed by the error-corrector and stored in the temporal store and an output controller performs output control of the reproduced data based on the reproduced information concerning copying consent stored in the temporal store.









E4570-01
Copy (*)

DECLARATION AND POWER OF ATTORNEY FOR PATENT APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name, I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

"REPRODUCTION APPARATUS AND REPRODUCTION METHOD OF DIGITAL
VIDEO SIGNAL OR AUDIO SIGNAL"

the specification of which (check one) ☒ is attached hereto.
☐ was filed on _____
as Application Serial No. _____
and was amended on _____
(if applicable)

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s)	Priority Claimed
10-102385 (Number)	Japan (Country)
14 April, 1998 (Day/Month/Year Filed)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
_____ (Number)	_____ (Country)
_____ (Day/Month/Year Filed)	<input type="checkbox"/> Yes <input type="checkbox"/> No
_____ (Number)	_____ (Country)
_____ (Day/Month/Year Filed)	<input type="checkbox"/> Yes <input type="checkbox"/> No
_____ (Number)	_____ (Country)
_____ (Day/Month/Year Filed)	<input type="checkbox"/> Yes <input type="checkbox"/> No
_____ (Number)	_____ (Country)
_____ (Day/Month/Year Filed)	<input type="checkbox"/> Yes <input type="checkbox"/> No

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

(Application Serial No.)	(Filing Date)	(Status: patented, pending, abandoned)
(Application Serial No.)	(Filing Date)	(Status: patented, pending, abandoned)
(Application Serial No.)	(Filing Date)	(Status: patented, pending, abandoned)
(Application Serial No.)	(Filing Date)	(Status: patented, pending, abandoned)

I hereby appoint as principal attorneys: Donald R. Antonelli, Reg. No. 20,296; David T. Terry, Reg. No. 20,178; Melvin Kraus, Reg. No. 22,466; Stanley A. Wal, Reg. No. 26,432; William I. Solomon, Reg. No. 28,565; Gregory E. Montone, Reg. No. 28,141; Ronald J. Shore, Reg. No. 28,577; Donald E. Stout, Reg. No. 26,422; Alan E. Schiavelli, Reg. No. 32,087; James N. Dresser, Reg. No. 22,973 and Carl I. Brundidge, Reg. No. 29,621 to prosecute and transact all business connected with this application and any related United States application and international applications. Please direct all communications to the following address:

Antonelli, Terry, Stout & Kraus
Suite 1800
1300 North Seventeenth Street
Arlington, Virginia 22209
Telephone: (703) 312-6600
Fax: (703) 312-6666

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United State Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

(Full Name)

(Signature)

Date April 1, 1999 Inventor Yutaka NAGAI Yutaka Nagai
Residence Yokohama-shi, Japan Citizenship Japan
Post Office Address 42-3-508, Hirado-3-chome, Totsuka-ku, Yokohama-shi, Japan.

Date April 1, 1999 Inventor Toshifumi TAKEUCHI Toshifumi Takeuchi
Residence Tokyo, Japan Citizenship Japan
Post Office Address 11-9-104, Nishikamata-4-chome, Ota-ku, Tokyo, Japan.

Date _____ Inventor _____
Residence _____ Citizenship _____
Post Office Address _____

Date _____ Inventor _____
Residence _____ Citizenship _____
Post Office Address _____

Date _____ Inventor _____
Residence _____ Citizenship _____
Post Office Address _____

Date _____ Inventor _____
Residence _____ Citizenship _____
Post Office Address _____

Date _____ Inventor _____
Residence _____ Citizenship _____
Post Office Address _____

Date _____ Inventor _____
Residence _____ Citizenship _____
Post Office Address _____

Date _____ Inventor _____
Residence _____ Citizenship _____
Post Office Address _____

Date _____ Inventor _____
Residence _____ Citizenship _____
Post Office Address _____